

REMARKS

Claims 1-35, 37-176, 178-181 and 228-229 were pending in the instant application as of the issuance of the Office Action dated March 17, 2008. According to the foregoing amendments, claims 1-20, 25-35, 37-38, 71-77, 79-167, 172-174, 180, 181 and 228 have been amended and claims 21-24, 39-70, 78, 168-171, 175, 176, 178 and 179 have been cancelled without prejudice to the prosecution of these claims in this or a subsequently filed application. Accordingly, after the amendments presented herein have been entered, claims 1-20, 25-35, 37-38, 71-77, 79-167, 172-174, 180, 181, 228 and 229 will remain pending in this application.

Support for the amendments to the claims may be found throughout the specification and in the claims as originally filed. Specifically, support for the amendments to claims 1 and 20 can be found throughout the specification at, for example, page 3, line 36 to page 4, line 11, page 5, line 1 to page 6, line 16, and page 126, line 4 to page 127, line 5, and in the claims as originally filed, for example, claims 1, 20, 21, 166 and 167. Moreover, support for the amendments to claims 30, 73, 76 and 77 can be found throughout the specification at, for example, page 125, line 8 to page 126, line 2 and page 20, lines 29-40. Other amendments have been made to attend to formal matters, for example, to correct claim dependencies and to attend to grammatical matters and inadvertent omissions.

No new matter has been added by the amendments to the claims. The amendments to the claims and cancellation of certain claims should not be construed as an acquiescence to the validity of the outstanding rejections and were done solely in the interest of expediting prosecution and allowance of the claims. Applicants reserve the right to pursue the claims as previously pending and as originally filed in one or more further applications.

DEFECTIVE OATH/ DECLARATION

The Examiner indicates that “[t]he oath or declaration is defective” because “[t]he citizenship of inventor Guo Zhang Wu is not listed.” Applicants submit herewith a new declaration in compliance with 37 CFR 1.67(a) and MPEP § 602.01 and 602.02, thereby rendering the foregoing objection moot. Specifically, Applicants note that the substitute declaration submitted herewith specifically recites the citizenship of inventor Guo Zhang Wu.

CLAIM OBJECTION

Claim 24 is objected to under 35 CFR 1.75(c), “as being of improper dependent form for failing to further limit the subject matter of a previous claim.” Solely in the interest of expediting examination and in no way acquiescing to the validity of the Examiner’s objection, Applicants have cancelled claim 24, thereby rendering the foregoing rejection moot.

***REJECTION OF CLAIMS 1-35, 37, 38, 71-176, 178-181 AND 228-229 UNDER
35 USC § 112, SECOND PARAGRAPH***

The Examiner has rejected claims 1-35, 37, 38, 71-176, 178-181 and 228-229 under 35 U.S.C. § 112, second paragraph as allegedly “being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.” In the interest of clarity, Applicants will address each rejection in turn, as set forth below.

Initially, the Examiner rejects claims 1-35, 37, 38, 71-176, 178-181 and 228-229 as allegedly indefinite on the grounds that

the compound of the formula A-B-C cannot be synthesized when the steps comprise 1) forming a benzophenone, 2) forming a diaryl ethylene and at least one of steps (a) through (g). For example if steps 1), 2) and step (a) or (b) or (d) or (e) is performed how is A (a phthalhydrazide) attached and how is C attached? If the steps comprise 1), 2) and step (c) or (f) is performed how is C attached? If the steps comprise 1), 2) and step (g), how is B attached?

Applicants respectfully disagree. As an initial matter, Applicants submit that the Examiner’s rejection appears to be directed to claim 1 and claims depending therefrom. Applicants note that claims 20-30, 32-34, 166 and 167, as previously and currently amended, are not dependent of claim 1. As the Examiner’s rejection fails to apply to independent claim 20, as previously and currently pending, and claims depending therefrom, Applicants submit that these claims are definite in accordance with 35 U.S.C. § 112, second paragraph.

With respect to claim 1, and claims depending therefrom, Applicants respectfully traverse the foregoing rejection. Notwithstanding the foregoing, solely in the interest of expediting

examination and in no way acquiescing to the validity of the Examiner's rejection, Applicants have amended claim 1 to clarify the required steps of the claimed method, thereby rendering the foregoing rejection moot.

The Examiner further rejects use of language "comprise" or "comprises" in the pending claims, for example, claims 28-30, 34, 37, 79 and 80. Specifically, the Examiner is of the opinion that "[i]t is not clear what else the compound or dye can comprise."

Applicants respectfully traverse the foregoing rejection. Applicants submit that one skilled in the art would appreciate that the claimed dyes or compounds can include additional additives or multiple dyes or compounds, thereby rendering use of the term "comprise" appropriate. For example, the dyes or cationic dyes can include multiple dyes as recited in the claim. Additionally, the dye can include other additives, for example, associated polymers, electron transfer species, macroluminides. In view of the foregoing, Applicants respectfully submit that use of the terms "comprise" or "comprises" is appropriate.

The Examiner further rejects the pending claims on the grounds that "the terms 'derivative', 'analog' and 'analogue' render the claims indefinite because it is not clear what compounds are intended." Applicants respectfully disagree. Notwithstanding the foregoing, solely in the interest of expediting examination and in no way acquiescing to the validity of the Examiner's rejection, Applicants have removed references to these terms, thereby rendering the foregoing rejection moot.

The Examiner further rejects claim 2 as indefinite on the grounds that "in claim 2, the compound serves to delivery the C moiety to a desired biological compartment but claim 1 is directed to a method of synthesis of A-B-C not a method of delivering C to a biological compartment." Applicants respectfully disagree. Notwithstanding the foregoing, solely in the interest of expediting prosecution and in no way acquiescing to the validity of the Examiner's rejection, Applicants have amended claim 2, thereby rendering the foregoing rejection moot.

The Examiner further rejects claim 24 as indefinite, for failure to define "R, R₁, R₂, R₃,

R₄ and X.” Applicants respectfully disagree. Notwithstanding the foregoing, solely in the interest of expediting prosecution and in no way acquiescing to the validity of the Examiner’s rejection, Applicants have cancelled claim 24, thereby rendering the foregoing rejection moot.

The Examiner further rejects claim 30 on the following grounds:

In claim 30, R is not defined for the dyes at the bottom of page 41. Also, in claim 30 it is not clear what the numbers that are shown opposite the dyes Malachite Green through Acid Green 50 on pages 9-12 refer to. Claim 30 further describes the cationic dye but it contains reactions, for example on pages 19-42. The reactants should be deleted so that only the cationic dye is shown. In claim 30, “and should be inserted between the last two structures listed.”

Solely in the interest of expediting examination and in no way acquiescing to the validity of the Examiner’s rejection, Applicants have amended claim 30 to (1) further define R, (2) delete reference to the numbers associated with certain dyes,¹ (3) delete the reactions and (4) add “and” as appropriate. Applicants submit that the foregoing amendments render the outstanding rejections moot.

The Examiner further rejects claim 35 and specifically states that ““and” should be inserted between the last two structures listed.” Applicants have amended claim 35 in accordance with the Examiner’s recommendation, thereby rendering the foregoing rejection moot.

The Examiner further rejects claims 73-77 on the grounds that “it is not clear ‘what functional groups’ are represented by R¹, R², and/or R³.” Applicants respectfully disagree. Notwithstanding the foregoing, Applicants have amended the pending claims to further define the functional groups, thereby rendering the foregoing rejection moot.

The Examiner further rejects claim 85 on the grounds that “there is no antecedent basis in claim 84 for the ‘amino-substituted aryl groups.’” Solely in the interest of expediting examination and in no way acquiescing to the validity of the Examiner’s rejection, Applicants

¹ For the record, Applicants note that the numbers associated with the dyes refer to the industrial designation of the specific dyes, as would be appreciated by a skilled artisan and as further reflected in Table 2 of the specification.

have amended claim 85, thereby rendering the foregoing rejection moot.

The Examiner further rejects claim 91 asserting that “‘protecting’ should be –protected-.” Applicants submit that claim 91 was previously amended to recite “protected” and as such, the outstanding objection is rendered moot.

The Examiner further rejects claims 153, 155 and 163 as “show[ing] a negative charge without specifying what the anion is.” Applicants have amended claims 153, 155 and 163 to clarify the nature of the anion, thereby rendering the foregoing rejection moot.

The Examiner further rejects claims 167-170 as allegedly failing to “disclose the step for how C is attached.” Solely in the interest of expediting examination and in no way acquiescing to the validity of the Examiner’s rejection, Applicants have amended claim 167, thereby rendering the foregoing rejection moot.

The Examiner further rejects claim 172 for allegedly failing to define B. Applicants submit that claim 172 has been amended to define B, thereby rendering the foregoing rejection moot.

Lastly, the Examiner rejects claim 228 as “indefinite because it improperly incorporates by reference essential subject matter. See the books recited at the bottom of page 115.” Applicants submit that claim 228 has been amended to delete reference to the recited books, thereby rendering the foregoing rejection moot.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejection of the pending claims as indefinite under 35 U.S.C. § 112, second paragraph.

REJECTION OF CLAIMS 1-35, 37, 38, 71, 72, 81-103, 105-127, 131-146, 148-152, 157-160, 165-171, 173-180 and 228-229 UNDER 35 USC § 112, FIRST PARAGRAPH (ENABLEMENT)

The Examiner has further rejected claims 1-35, 37, 38, 71, 72, 81-103, 105-127, 131-146, 148-152, 157-160, 165-171, 173-180 and 228-229 under 35 U.S.C. § 112, first paragraph as lacking enablement. Specifically, the Examiner is of the opinion that

the specification, while being enabling for a method of synthesis of a compound A-B-C wherein A is a chemiluminescent moiety that is a phthalhydrazide, sulfonyloxamide or active oxalate, B is an energy acceptor moiety that is a 1, 5 – diarylpentadiene and C is Foscarnet, ddc or acycloguanosine, does not reasonably provide enablement for a method of synthesis of a compound A-B-C where A is any chemiluminescent moiety, B is any energy acceptor moiety and C is any biologically active moiety for example, any pharmaceutical or drug...

Applicants respectfully traverse this rejection and submit that based on the teachings in Applicants' specification as well as the general knowledge available in the art at the time of the filing of the present application, one of ordinary skill in the art would be able to make and use the claimed invention using only routine experimentation. Notwithstanding the foregoing, solely in the interest of expediting examination and in no way acquiescing to the validity of the Examiner's rejections, Applicants have amended the pending claims to further characterize elements A, B and C.

Specifically, independent claim 1 has been amended to recite that A is a *phthalhydrazide chemiluminescent moiety*, B is an energy acceptor moiety, and C is a biologically active moiety *comprising a nucleophilic moiety*. Similarly, independent claim 20 has been amended to recite that A is a chemiluminescent moiety selected from the group consisting of *phthalhydrazides, sulfonyloxamides and active oxalates*, B is an energy acceptor moiety and C is a biologically active moiety *comprising a nucleophilic moiety*. Previously independent claims 166 and 167 have been amended to be dependent of claim 20.

In view of the foregoing amendments, Applicants submit that the pending claims are sufficiently enabled such that one skilled in the art would be able to make and use the claimed invention without undue experimentation. Applicants initially note that each of the pending claims are directed to species of chemiluminscent moieties (A), *e.g.*, phthalhydrazides, sulfonyloxamides and active oxalates explicitly acknowledged as enabled by the Examiner. With respect to elements B and C, Applicants submit that the genus of energy acceptor moieties (B)

and biologically active moieties having a nucleophilic moiety (C), respectively or the specific species recited by the independent claims, are sufficiently characterized to allow a skilled artisan to make and use the claimed invention without undue experimentation. Indeed, based on the methods described in the specification, B's ability to serve as an energy acceptor moiety and C's possession of a nucleophilic moiety, allow for the claimed genus of molecules to operate in accordance with the disclosed methods. Indeed, B's ability to form the A-B-C complex and desirably release the biologically active moiety (C) relies, in part, upon B being an energy acceptor moiety. As described in the specification, in particular embodiments, B accepts energy from A, thereby achieving an excited state which relaxes upon cleavage with C, the biologically active moiety for delivery (see, for example, page 3, lines 1-10 and page 65, lines 1-19 of the specification). Similarly, C's ability to form the A-B-C complex and desirably release relies, in part, upon C possessing a nucleophilic moiety (see, for example, page 3, line 37 to page 4, line 11 and page 8, line 32 of the specification). Such features are consistent with the methods described in the specification, as would be appreciated by a skilled artisan. Accordingly, further characterization of the elements of B and C is unnecessary.

Moreover, Applicants submit that, as set forth in M.P.E.P. § 2164.02, the absence of a working example is not sufficient to undermine the enablement of a claimed invention. Indeed, "the specification need not contain an example if the invention is otherwise disclosed in such manner that one skilled in the art will be able to practice it without an undue amount of experimentation. *In re Borkowski*, 422 F.2d 904." Moreover, M.P.E.P. § 2164.01(b) provides that "as long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112 is satisfied. *In re Fisher*, 427 F.2d 833, 839."

In view of the foregoing enablement standard, Applicants respectfully submit that the teachings in the present specification are sufficient to enable an ordinarily skilled artisan to make and use the claimed invention using only routine experimentation. For example, as acknowledged by the Examiner, the specification provides working examples in which a compound A-B-C is synthesized, where A is either phthalhydrazide, sulfonyloxamide or active oxalate, B is either a 1, 5 – diarylpentadiene and C is either Foscarnet, ddc or acycloguanosine. Applicants submit that such disclosure, *i.e.*, such working examples, are sufficient to support the

scope of the claimed genus. Indeed, the operation of the invention relies, in part, upon those common features shared amongst each class of A, B and C, as currently reflected in the claims. Accordingly, based on such findings and the exemplary methods provided in the specification, designing methods of synthesis using other species of A, B and C and falling within the claimed genus for each, merely requires routine experimentation.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejection of the pending claims as lacking enablement under 35 U.S.C. § 112, first paragraph.

CONCLUSION

In view of the foregoing remarks, reconsideration of the rejections and allowance of all pending claims is respectfully requested. If there are any remaining issues or if the Examiner believes that a telephone conversation with Applicants' Attorney would be helpful in expediting prosecution of this application, the Examiner is invited to call the undersigned at (617) 227-7400.

The Commissioner is hereby authorized to charge any deficiency in the fees paid herewith, or credit any overpayment, to Deposit Account No. 12-0080, under Order No. RMI-017, from which the undersigned is authorized to withdraw.

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Respectfully submitted,

/Maneesh Gulati/

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